DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

According to the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (1300 OG 142, 22 November 2005), the analysis for determining patent eligible subject matter under §101 can be said to be subject to the following criteria:

1. Does the claimed invention fall within one of the four statutory categories (process, machine, manufacture or composition of matter)? If the answer to this criterion is no, then the claimed invention is not statutory eligible subject matter.
2. If the answer is yes to the first criterion, then does the claimed invention fall within a judicial exception? If the answer to this criterion is no, then the claimed invention would be statutory eligible subject matter.
3. If the answer is yes to the second criterion, then does the claimed invention provide a practical application of the judicial exception? If the answer to this criterion is yes, then the claimed invention would be statutory eligible subject matter, unless the claimed invention effectively

preempts all substantial practical applications of the judicial exception, in which case the claimed invention would not be statutory eligible subject matter.

4. If the answer to the third criterion is no, then the claimed invention is not statutory eligible subject matter and is not eligible for patent protection.

With regards to the first criterion, the claimed invention is a method of qualifying a private customer for space flight. Certainly, the steps recited can be considered a "process" and therefore broadly falls within one of the four statutory categories of invention.

However, regarding the second criterion it is well settled that claims directed to nothing more than abstract ideas, natural phenomenon, and laws of nature (i.e. judicial exceptions) are not eligible and therefore are excluded from patent protection. Diehr, 450 U.S. at 185, 209 USPQ at 7; accord, e.g., Chakrabarty, 447 U.S. at 309, 206 USPQ at 197; Parker v. Flook, 437 U.S. 584, 589, 198 USPQ 193, 197 (1978); Benson, 409 U.S. at 67-68 , 175 USPQ at 675; Funk, 333 U.S. at 130, 76 USPQ at 281. "A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right." Le Roy, 55 U.S. (14 How.) at 175. Instead, such "manifestations of laws of nature" are "part of the storehouse of knowledge," "free to all men and reserved exclusively to none." Funk, 333 U.S. at 130, 76 USPQ at 281. In this case, several of the method steps recited ("familiarizing the private customer…", "evaluating the private customer as qualified or unqualified", etc.) are merely the manipulation of abstract ideas. It is the examiner's

position that such manipulation of abstract ideas broadly falls into the above noted exclusions.

For claims including such excluded subject matter to be eligible, according to the third criterion the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 ("application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application"). A practical application of the § 101 judicial exception can be identified in various ways:

- The claimed invention "transforms" an article or physical object to a different state or thing; or
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

In this case, the recited steps do not result in a transformation of an article or physical object to a different state or thing. All that is claimed is a method of qualifying a customer for space flight. While there may be some physical transformation in certain steps such as subjecting a customer to increased or decreased gravity forces, this is not the claimed result of the process. The claimed end result of the process is qualifying a person for space flight. This end result is not a transformation of an article or physical object from a different state or thing. Therefore, it is this examiner's opinion that the judicial exception recited in the claims is not practically applied via a transformation.

For eligibility analysis, physical transformation "is not an invariable requirement, but merely one example of how a mathematical algorithm [or law of nature] may bring about a useful application." AT&T, 172 F.3d at 1358-59, 50 USPQ2d at 1452. If the examiner determines that the claim does not entail the transformation of an article, then the examiner shall review the claim to determine if the claim provides a practical application that produces a useful, tangible and concrete result. In this case, it is the examiner's position that the claimed invention produces a result that is not useful, concrete and tangible. The claimed result here is "qualifying a private customer for space flight". First, the claimed invention can arguably be considered to have a specific, substantial and credible utility. However, the claimed invention can not be said to produce a tangible result. Evaluating a person's fitness for flight and certifiying such is an abstraction that is not practically applied and cannot be considered a tangible result. The invention, apart from tangential elements such as subjecting the user to certain gravity forces, essentially amount to abstract steps which take place in the mind. Also, it is this examiner's position that the claimed invention does not produce a "concrete" result. The claimed method is not sufficiently concrete because the claim requires such a degree of subjective human judgment that a reasonably consistent result cannot be predictably or reliably assured.

Therefore, since the claimed method does not result in a physical transformation and does not produce a useful, concrete and tangible result, it is this examiner's position that the claimed judicial exception is not practically applied and is therefore not eligible for patent protection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keith Cowing, "Earth's First Self-Financed Astronaut" (hereinafter referred to as "Cowing") in view of "Microcom's Space Newsfeed" ("Microcom"). Cowing discloses the method by which a private person, in particular Dennis Tito, qualified for space flight. In particular, the "Dennis Goes Back to School" section of the reference (pp. 4-5) discusses various steps of the qualification procedure for Mr. Tito, including physical and intellectual training components. The components included subjecting Mr. Tito to simulated space environments ("[o]ne involved time on a centrifuge at high G levels.") and familiarizing Mr. Tito with spacecraft interiors and equipment ("all individuals are trained for operational responsibilities on their mission…Tito was also given routine operational training including such tasks as the changeout of CO2 canisters and other life support system tasks"). The process included an evaluation of Mr. Tito based on successful completion of the program, after which he was certified for space flight. While Cowing does not disclose that Mr. Tito was subjected to a medical evaluation, such a step is well known in the art and in fact was performed on Mr. Tito, as discussed in the Microcom document (see the "Manned Space" section on page 8 of the

reference. While Cowing does not explicitly disclose that Mr. Tito was “enrolled” in the program, Official Notice is taken that such steps are very well known in qualification programs, and would have been obvious to include in the method. With respect to claims 2 and 12, Cowing discloses, as noted above, a step of subjecting Mr. Tito to simulated gravity forces. With respect to claims 3 and 13, the discussion on page 5 of “being trained for all contingencies during launch, orbital operations and landing" reads on the steps of educating the customer regarding space flight and/or spacecraft operation. With respect to claims 4 and 14, the method of claim 1 inherently involves training a customer for space flight. With respect to claims 5, 6, 15 and 16, the training disclosed by Cowing is for both sub-orbital and orbital space flight. Also, the phrases “for sub-orbital space flight” and “for orbital space flight” are functional, describing the intended purpose of the method rather than reciting discrete method steps. Under MPEP 2114, such language is generally considered to have little if any patentable weight. With respect to claims 7-9 and 17-19, Cowing discloses a step of transporting the customer on an orbital space flight. With respect to claims 10 and 20, the recited duration of the qualification is an obvious variation on the teachings of Cowing. With respect to claim 11, the steps of subjecting a customer to space simulating environment, familiarizing a user with spacecraft interiors and equipment and performing a medical evaluation all inherently have different apparatuses corresponding thereto. With respect to claim 21, the step of educating a private customer on aspects of space flight and engineering and dynamics is suggested by the teachings of Cowing. Also, the qualification program is inherently performed independently of whether the

customer travels into space. With respect to claims 22 and 24, Official Notice is taken that it is well known to use a computer to register a student for a training course. With respect to claims 23 and 25, as noted above Cowing discloses the use of a spacecraft component.

Response to Arguments

Applicant's arguments filed on March 7, 2008 with respect to the rejections under 35 USC 101 have been fully considered but they are not persuasive. While it is understood that physical equipment is used in the claimed method, the equipment is tangential to the claimed result of qualifying a person for space flight. This end result does not manifest itself in any physical way, but rather is a subjective determination made by an instructor. In order to be considered patent eligible under 35 USC 101, a claimed process must either result in a physical transformation or contain a sufficient tie to a machine, article of manufacture or a composition of matter. In re Comiskey, 84 USPQ2d 1670 (Fed. Cir. 2007). It is this examiner's position that the claimed method, including the newly added language pertaining to the use of space equipment, does not constitute a tie to an apparatus sufficient to bring the method within the scope of patentable subject matter. It is also noted that no specific steps taken with the equipment are recited. Rather, generalized training steps "using" the equipment are recited.

Applicant's arguments with respect to the rejections under 35 USC 103 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kurt Fernstrom whose telephone number is (571) 272-4422. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Kim can be reached on 571 272-4463. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kurt Fernstrom/
Primary Examiner, Art Unit 3711

June 9, 2008